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(Reaffirmed 1987)

Indian Standard

SIZES OF GRAPHITE CRUCIBLES

(*First Revision*)

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MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

SIZES OF GRAPHITE CRUCIBLES

(First Revision)

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Indian Standard

SIZES OF GRAPHITE CRUCIBLES

(First Revision)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 27 February 1981, after the draft finalized by the Refractories Sectional Committee had been approved by the Structural and Metals Division Council.

0.2 This standard covering the sizes of lift-out type of graphite crucibles, also known as 'A' shape crucibles was first published in 1961. In this revision, the dimensions of 'A' shape crucibles have been modified on the basis of the experience gained, since the first publication of this standard and the requirements for sizes of four additional types of crucibles have been incorporated. The additional types are (i) tilting furnace type (ii) basin type (for bale-out and holding furnaces) (iii) basin with spout (for melting aluminium in tilting furnaces) and (iv) top-pour type crucibles.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard specifies nominal sizes of five different types of graphite crucibles, commonly used both in ferrous and non-ferrous foundries.

2. TYPES OF CRUCIBLES

2.1 The sizes for the following types of crucibles have been specified in this standard:

- a) 'A' Shape — lift-out type for use in pit furnaces — designated by the letter 'A'

*Rules for rounding off numerical values (*revised*).

- b) *Basin Type* — for use in bale-out and holding furnaces — designated by the letter 'B'
- c) *Spouted Tilting Type* — for use in tilting furnaces — designated by the letters 'TP'
- d) *Spouted Basin Type* — for use in tilting furnaces — designated by the letters 'TPB'
- e) *Top-Pour Type* — for use in tilting furnaces — designated by the letters 'TPT'.

3. SIZES

3.1 The sizes and capacities of different types of graphite crucibles shall comply with the requirements given in Tables 1 to 5.

4. CRUCIBLE DESIGNATION

4.1 The designation number for each crucible shall consist of not more than three letters, indicating the type of crucible (*see 2.1*) followed by a number indicating its nominal melting capacity in terms of kilogram of brass for 'A' shape, spouted tilting type and top-pour type crucibles and in terms of kilogram of aluminium for basin type and spouted basin type crucibles. For example, designation A-6 indicates a 'A' shaped crucible having a melting capacity of 6 kg of brass, and designation TPB-580 indicates a spouted basin type crucible having a melting capacity of 580 kg of aluminium.

5. SHAPE AND CONSTRUCTIONAL DETAILS

5.1 The different types of crucibles shall conform to the shape as given in Fig. 1 to 5.

6. TOLERANCES

6.1 A tolerance of ± 2 percent on the external dimensions subject to a maximum of 5 mm shall be permitted.

6.2 The internal brimful volume shall not vary by more than ± 2 percent.

7. SAMPLING

7.1 Sampling method and number of samples to be taken shall be as agreed to between the purchaser and the manufacturer.

8. MARKING

8.1 Each crucible shall be marked suitably indicating the name of the manufacturer or trade-mark, and the crucible designation, which indicates the type and size of the crucible.

TABLE 1 STANDARD SIZES FOR 'A' SHAPE CRUCIBLES

(Clause 3.1)

CRUCIBLE DESIGNATION	HEIGHT, h	EXTERNAL DIAMETER (TOP), d_1	EXTERNAL DIAMETER (BOTTOM), d_2	BRIMFUL CAPACITY
	mm	mm	mm	l
(1)	(2)	(3)	(4)	(5)
A-1	90	80	55	0.185
A-2	110	100	65	0.350
A-3	130	110	70	0.570
A-4	140	115	75	0.610
A-5	150	125	90	0.82
A-6	160	135	95	1.00
A-8	175	150	100	1.45
A-10	200	160	115	2.00
A-12	210	170	120	2.35
A-14	220	175	120	2.60
A-16	230	185	125	3.00
A-18	240	195	130	3.25
A-20	255	200	140	3.75
A-25	260	220	150	4.30
A-30	290	230	160	5.50
A-35	300	240	170	6.25
A-40	310	260	190	8.00
A-50	330	270	195	9.50
A-60	345	285	200	10.5
A-80	375	305	215	12.5
A-100	400	325	230	16.0
A-120	429	333	238	18.5
A-150	457	367	259	24.7
A-200	502	410	277	33.5
A-250	545	429	280	40.3
A-300	584	445	313	48.6
A-350	607	473	324	53.8
A-400	650	493	330	63.1
A-500	700	519	343	74.5
A-600	717	543	356	90.0
A-800	770	589	413	113.5
A-1000	820	627	407	141.0

**TABLE 2 STANDARD SIZES OF BASIN TYPE
(' B ' TYPE) CRUCIBLES**

(Clause 3.1)

CRUCIBLE DESIGNATION	HEIGHT, <i>h</i>	EXTERNAL DIAMETER (TOP), d_1	EXTERNAL DIAMETER (BOTTOM), d_2	BRIMFUL CAPACITY
	mm	mm	mm	
(1)	(2)	(3)	(4)	(5)
B-35	350	465	220	22.2
B-50	400	405	220	27.3
B-60	440	405	220	30.4
B-70	385	465	285	35.5
B-100	410	530	310	46.4
B-120	460	530	310	54.4
B-135	500	530	310	61.2
B-150	560	530	310	71.6
B-175 (i)	610	530	310	79.1
B-175 (ii)	510	620	360	81.6
B-245	640	620	360	111.4
B-300	705	620	360	130.0
B-350	805	620	360	150.0

NOTE — The nominal melting capacity in terms of kg of brass is approximately three times that of aluminium.

**TABLE 3 STANDARD SIZES OF SPOUTED TILTING (TP)
TYPE CRUCIBLES**

(Clause 3.1)

CRUCIBLE DESIGNATION	HEIGHT, <i>h</i>	EXTERNAL DIAMETER (TOP), d_1	EXTERNAL DIAMETER (BOTTOM), d_2	LENGTH OF SPOUT, <i>s</i>
	mm	mm	mm	mm
(1)	(2)	(3)	(4)	(5)
TP-75	432	262	191	102
TP-100	460	302	216	95
TP-120	490	299	236	95
TP-150	564	324	238	114
TP-200 (i)	591	356	241	127
TP-200 (ii)	613	359	242	121
TP-250	642	407	292	137
TP-270	673	421	254	137
TP-300	807	365	248	127
TP-400	800	435	295	137
TP-500 (i)	740	546	324	123
TP-500 (ii)	940	440	295	152

**TABLE 4 STANDARD SIZES OF SPOUTED BASIN (TPB)
TYPE CRUCIBLES**

(Clause 3.1)

CRUCIBLE DESIGNATION	BRIMFUL CAPACITY	HEIGHT, h	EXTERNAL DIAMETER (TOP), d_1	EXTERNAL DIAMETER (BOTTOM), d_2	LENGTH OF SPOUT, s
(1)	(2)	(3)	(4)	(5)	(6)
TPB-155	74.2	600	527	318	130
TPB-225	106.6	630	616	356	159
TPB-320	142.4	800	616	356	159
TPB-580	256.2	889	775	381	186

NOTE — The nominal melting capacity in terms of kg of brass is approximately three times that of aluminium.

TABLE 5 STANDARD SIZES OF TOP-POUR (TPT) TYPE CRUCIBLES

(Clause 3.1)

CRUCIBLE DESIGNATION	HEIGHT, h	EXTERNAL DIAMETER (TOP), d_1	EXTERNAL DIAMETER (BOTTOM), d_2
(1)	(2)	(3)	(4)
TPT-75	725	260	192
TPT-120	762	292	229
TPT-200	914	343	241
TPT-300	1 016	419	254
TPT-400	800	435	295
TPT-500	940	440	295
TPT-1200	1 192	542	325

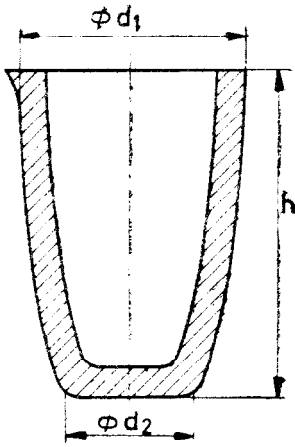


FIG. 1 'A' SHAPE CRUCIBLE

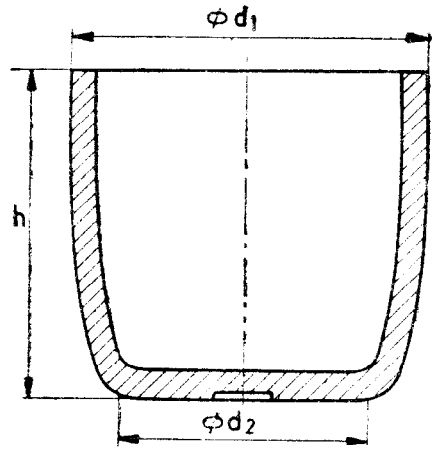


FIG. 2 BASIN TYPE CRUCIBLE

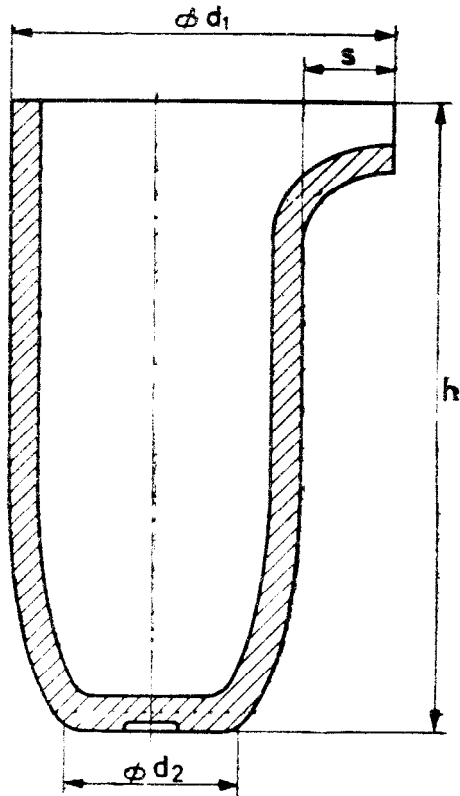


FIG. 3 SPOUTED TILTING TYPE CRUCIBLE

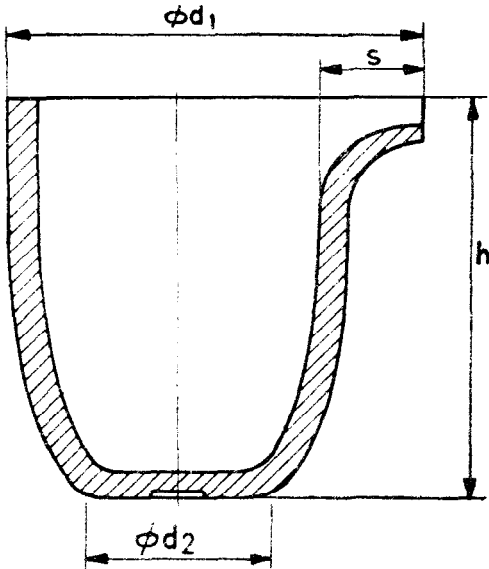


FIG. 4 SPOUDED BASIN TYPE
CRUCIBLE

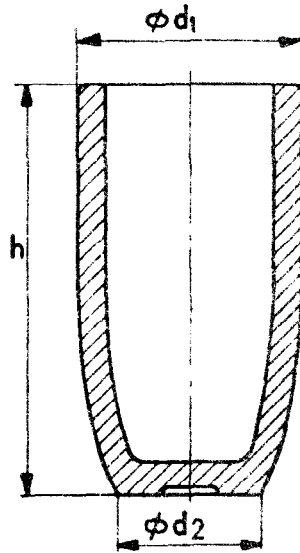


FIG. 5 TOP-POUR TYPE
CRUCIBLE

8.1.1 The crucibles may also be marked with the Standard Mark.

NOTE — The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1936 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

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